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A New Genus and New Species Of Zoarcid Fish From the North Pacific Ocean

By Leonard P. Schultz
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Dr. Teodor Nalbant (Institutul de Cercitari Piscicole, Bucharest, Rumania) has kindly sent to me for examination two specimens of a zoarcid fish that represent an undescribed new genus and new species in the family Zoarcidae. I appreciate Dr. Nalbant's kindness in giving me permission to report on these unique specimens.

Nalbantichthys, new genus

Type-species: *Nalbantichthys elongatus*, new species.

This new genus is characterized by the slender elongate scaleless body with loose skin; pelvic fins absent; small elongate gill opening situated completely dorsal to base of very small pectoral fin; next to last vertebra (fig. 3) with rudiments of three neural and three (possibly four) hemal spines (otherwise there is a single neural and single hemal spine for each anteriorly placed vertebra), and one fin ray for each vertebra except the penultimate vertebra and hypural plate; single median interorbital pore; nasal openings represented by a pair of tubular nostrils; vomer and palatines toothless; jaws, especially at the tips, with strong conical teeth; branchiostegal rays seven; vertebrae 25+119 to 125, totaling 144 to 150.

Nalbantichthys is more closely related to *Melanostigma* Günther than to any other genus of zoarcid fishes because both genera have the gill opening restricted to a pore entirely above the base of the pectoral fin in combination with scaleless loose skin and pelvic fins absent. These characters exclude the more or less related genera *Gymnelus* Reinhardt, *Lyocara* Gill, *Oidiphorus* McAllister and Rees, and *Maynea* Cunningham, all with the gill opening extending downward below the dorsal edge of the pectoral fin base.

Nalbantichthys differs from *Melanostigma* by lacking teeth on vomer and palatines and a much greater number of vertebrae—144 to 150 instead of 83 to 99 vertebrae (McAllister and Rees, 1964, Nat. Mus. Canada, Bull. 199, appendix table p. 110 [p. 88 gives 83 to 93 vertebrae]).

This genus is named *Nalbantichthys* in honor of my ichthyological colleague Dr. Teodor Nalbant.

Nalbantichthys elongatus, new species

FIGURES 1, 2, 3

Holotype: USNM 200671, collected in the south-central Bering Sea, May 1964, by Mr. Constantine Bādicā, from the bottom at a depth of 300 meters, by the trawler *Galatzi*, total length 138.3 mm, standard length 136 mm, sex male.

Paratype: No number in Institutul de Cercitari Piscicole, Bucharest, taken with holotype and bearing same locality data, total length 110.3 mm, standard length 108 mm.

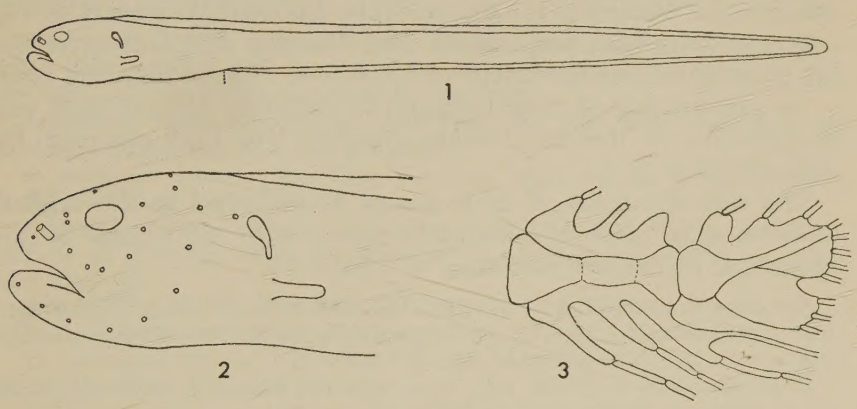
Dr. Nalbant in a letter dated February 16, 1967, states that this new genus and new species were taken "together with *Sebastodes* sp., *Sarritor frenatus frenatus* Gilbert, *Percis japonicus* Pallas, and *Careproctus cameliae* Nalbant."

DESCRIPTION.—No dorsal fin ray is associated with the first vertebra; however, in the radiograph one free predorsal pterygiophore shows up clearly just in front of the tip of the neural spine of the first vertebra; dorsal and anal fin rays are equal in number to the vertebrae with which they are associated except for the penultimate vertebra and the hypural plate; radiographs show three rays dorsally and five terminal ones on the dorsal part of the hypural plate so that the dorsal fin ray counts are 148+3+5=156 for the holotype and 142+3+5=150 for the paratype. The first 25 vertebrae are abdominal, followed by the caudal vertebrae, each bearing one anal ray except the penultimate vertebra, which has four anal rays followed by three rays on the caudal part of the hypural plate. Thus the holotype has 123+4+3=130 anal rays and the paratype 117+4+3=124.

The penultimate vertebra appears to be composed of the elements of at least three caudal vertebrae (fig. 2) since three degenerate neural

spines are represented with only the first bearing a dorsal fin ray. The degenerate hemal spines are definitely three with the last divided distally into two elements, each bearing an anal ray, possibly the posterior hemal branch representing a fourth vertebra. The penultimate vertebra was counted as one vertebra. I do not consider the penultimate vertebra of *Nalbantichthys* as abnormal since both specimens are alike in that character.

The somewhat rudimentary fleshy pectoral fin as seen in one of the radiographs has six rays; no lateral line was observed; peritoneum blackish; mouth terminal, lower jaw slightly shorter than upper jaw; teeth on jaws conical, uniserial on sides and a patch of canines at tip of both jaws; margin of eye not free; eye covered with a dermal membrane; by dipping the head of the holotype in a solution of



FIGURES 1–3.—*Nalbantichthys elongatus*, new species: 1, outline of holotype; 2, arrangement of pores on head; 3, penultimate vertebra and hypural plate. (Drawings by Dorothea B. Schultz.)

alizarin the pores on the head became visible as shown in figure 2.

The following counts were made, first for the holotype, then for the paratype, respectively: Dorsal rays (including those in middle of caudal) 156 and 150; anal rays to midcaudal 130 and 124; vertebrae 25+125=150 and 25+119=144; branchiostegals 7 and ?; pectoral rays 6 and ?.

Measurements (made on the holotype and paratype and expressed in thousandths of the total length, first for the holotype, then the paratype): Total lengths 138.3 and 110.3 mm; length of head from snout tip to upper edge of gill opening 100 and 105; depth of head at gill opening 77 and 75; diameter of eye 14 and 16; distance from tip of snout to rear of maxillary 44 and 54; longest diameter of gill opening 16 and 16; tip of snout to front edge of eye 25 and 27; width of fleshy

interorbital space 19 and 15; snout tip to anus 245 and 263; snout tip to dorsal origin 105 and 103; length of pectoral fin 22 and 21; distance from lower edge of gill opening to upper edge of base of pectoral fin 14 and 15; length of nasal tube 7 and 7; length of caudal fin 17 and 21.

REMARKS.—This new species has two unique characters for the family Zoarcidae. The first is the anatomical nature of the penultimate vertebra, described above and diagrammed in figure 2. One might cast doubt on the uniqueness of the penultimate vertebrae were they unlike in both specimens. Since they are basically identical, both show rudiments of three vertebrae, each supporting a neural spine and three, or possibly four, hemal spines. The second character is the large number of vertebrae 144 to 150, more than I have noted for any other genus in the family Zoarcidae.

For comparison purposes with the new species, radiographs of type specimens of zoarcids in the United States National Museum (USNM) collection have been prepared by Mrs. Dorothy Ann Hubbs (except for those specimens too brittle or too soft to remove from the jars).

An examination of these radiographs definitely did not show any modification of the penultimate vertebra like that observed for *Nalbantichthys*.

The scientific name of each species as published in the original description is listed alphabetically (along with my counts of the abdominal and caudal vertebrae) as follows:

Aprodon corteziana Gilbert, 1890, Proc. U.S. Nat. Mus., vol. 13, p. 107 (holotype 46457: vertebrae 24+90=114; paratypes 47056, 47057, and 47180: vertebrae, respectively, 24+?; 24+90=114; 23+89=112).

Bothrocara remigera Gilbert, 1915, Proc. U.S. Nat. Mus., vol. 48, p. 366, pl. 20, fig. 19 (holotype 75820: vertebrae 23+93=116).

B. zesta Jordan and Fowler, 1902, Proc. U.S. Nat. Mus., vol. 25, p. 749, fig. 3 (holotype 50576: vertebrae 21+98=119).

Embryx parallelus Gilbert, 1915, Proc. U.S. Nat. Mus., vol. 48, p. 360, pl. 19, fig. 16 (holotype 75818: vertebrae 23+108=131).

Leurynnis paucidens Lockington, 1880, Proc. U.S. Nat. Mus., vol. 2, p. 326 (holotype 23502: vertebrae 21+81=102; paratype 22+82=104).

Lycenchelys bullisi Cohen, 1964, Proc. Biol. Soc. Washington, vol. 77, p. 113, figs. 1–3 (holotype 188232: vertebrae 24+82=106).

L. spilotus Fowler, 1943, U.S. Nat. Mus. Bull. 100, vol. 14, no. 2, p. 89, fig. 24 (holotype 99511: vertebrae 23+90=113).

L. poecilimon Jordan and Fowler, 1902, Proc. U.S. Nat. Mus., vol. 25, no. 1313, p. 748, fig. 2 (holotype USNM 50578: vertebrae 23+90=113).

Lycodapus attenuatus Gilbert, 1915, Proc. U.S. Nat. Mus., vol. 48, p. 372, pl. 21, fig. 22 (holotype 75821: vertebrae 17+76=93).

L. dermatinus Gilbert, 1893, Rept. U.S. Fish Comm., vol 19, p. 471, pl. 35 (holotype 53035: vertebrae 14+66=80).

L. lycodon Gilbert, 1915, Proc. U.S. Nat. Mus., vol. 48, p. 371, pl. 21, fig. 21 (holotype 75822: vertebrae 16+74=90).

L. mandibularis Gilbert, 1915, Proc. U.S. Nat. Mus., vol. 48, p. 369, pl. 20, fig. 20 (holotype 78523: vertebrae 16+77=93).

Lycodes brevipes Bean, 1890, Proc. U.S. Nat. Mus., vol. 13, p. 38 (holotype 45362: vertebrae 20+82=102; paratypes 162712: vertebrae 22+81=103; 21+80=101; 20+82=102).

L. camchaticus Gilbert and Burke, 1910 (1912), U.S. Bur. Fish. Bull., vol. 30, p. 89, fig. 34 (holotype 74396: vertebrae 22+100=122).

L. concolor Gill and Townsend, 1897, Proc. Biol. Soc. Washington, vol. 11, p. 233 (holotype 48764: vertebrae 22+93=115).

L. diapterus Gilbert, 1891, Proc. U.S. Nat. Mus., vol 14, p. 564 (holotype 44385: vertebrae 21+100=121; paratypes 46716 and 125538: vertebrae, respectively, 21+100=121; 23+?93).

L. frigidus Collett, 1878, Forh. Ved.-Selsk. Christiana, no. 14, p. 45 (holotype 22977: vertebrae 24+82=106).

L. paxillus Goode and Bean, 1879, Proc. U.S. Nat. Mus., vol. 2, p. 44 (holotype 22177: vertebrae 24+107=131).

L. turneri Bean, 1879, Proc. U.S. Nat. Mus., vol. 1, p. 463 (holotype 21529: vertebrae 26+71=97).

L. verillii Goode and Bean, 1877, Amer. Journ. Sci. Arts, vol. 14, p. 474 (holotype 21013: vertebrae 24+88=112).

L. zoarchus Goode and Bean, 1895, Oceanic Ichthyology, U.S. Nat. Mus. Spec. Bull., vol. 2, p. 308, figs. 276, 276a, 283c (holotype 39398: vertebrae 24+96=120; paratype 39298: vertebrae 24+99=123).

Lycodopsis crassilabrus Gilbert, 1890, Proc. U.S. Nat. Mus., vol. 13, p. 106 (holotype 44280: vertebrae 24+105=129).

L. crotalinus Gilbert, 1890, Proc. U.S. Nat. Mus., vol. 13, p. 105 (holotype 44297: vertebrae 24+102=126).

Lyconema barbatum Gilbert, 1893 (1895), Rept. U.S. Fish Comm., vol. 19, p. 471, pl. 35 (holotype 48582: vertebrae 21+93=114; paratype 53036: vertebrae 22+90=112).

Maynea brunnea Bean, 1890, Proc. U.S. Nat. Mus., vol. 13, p. 39 (holotype 119446: vertebrae 23+89=112; paratype 119447: vertebrae 22+94=116).

M. californica Gilbert, 1915, Proc. U.S. Nat. Mus., vol. 48, p. 362, pl. 19, fig. 17 (holotype 75819: vertebrae 27+86=113).

Rhigophila dearborni DeWitt, 1962, Copeia, no. 4, p. 821, figs. 1–4 (paratypes 196979: vertebrae 24+69=93; 24+73=97; 24+69=92; 24+67=91).

Zoarces gilli Jordan and Starks, 1905, Proc. U.S. Nat. Mus., vol. 28, p. 212, fig. 11 (holotype 45355: vertebrae 24+107=131).

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